

## REMARKS

Applicants respectfully request further examination and reconsideration in view of the instant response. Claims 1-6, 8-13 and 15-20 remain pending in the case. Claims 1-6, 8-13 and 15-20 are rejected. The Examiner is thanked for performing a thorough search.

Independent Claims 1, 8 and 15 have been amended. No new matter has been added. For example, support for the amendments can be found in the instant application serial no. 09/955,264 at lines 13-14 of page 40 and page 43. Page 40 lines 13-14 state, "The output includes a bid function that specifies the amount a bidder with a value  $v$  should bid, as a function of  $v$ ." Page 43 states, "The Report Generator 15 takes the outputs of the structure extractor and bid calculator and presents the information contained in them to the bidder. An example of a report generated is provided as follows in Table B:...Referring to Table B, the bidder may decide to pick  $b=30$ , the value that yields the maximum expected payoff, or he may decide to pick  $b=40$ , which yields a payoff that has a slightly lower expected value, but also has the advantage of being less variable." Note that Table B on page 43 includes "Probability that bid  $b$  wins the auction."

### 35 U.S.C. §103(a)

Claims 1-6, 8-13 and 15-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent 6,415,270 by Rackson et al., (hereinafter referred to as "Rackson") in view of United States Patent 6,556,960 by Bishop et al., (hereinafter referred to as "Bishop" ) and further in view of "Estimating Transition – Probabilities in a Dynamic Graphic Model with Unobservable Variables," by Castillo et al. published June 2001 by IEEE Transactions on Reliability, Vol. 50, No. 2, pages 136-144. Applicants have reviewed the cited references and respectfully submit that the embodiments of the present invention are neither taught nor suggested by the cited references, alone or in combination.

“As reiterated by the Supreme Court in KSR, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries” including “[a]scertaining the differences between the claimed invention and the prior art” (MPEP 2141(II)). “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious” (emphasis in original; MPEP 2141.02(I)). Appellant notes that “[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art” (emphasis added; MPEP 2141(III)).

Applicants respectfully submit that “[i]t is improper to combine references where the references teach away from their combination” (emphasis added; MPEP 2145(X)(D)(2); *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)). Applicants respectfully note that “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention” (emphasis in original; MPEP 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)). Further, Applicants respectfully submit that, “[w]ith regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not” (emphasis added) (MPEP 2142).

In particular, “if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious” (emphasis added) (MPEP 2143.01(VI); *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)). Further, “[i]f the proposed modification would render the prior art invention

being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed amendment” (emphasis added) (MPEP 2143.01(V); *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

More specifically, Applicants respectfully submit that there is no motivation to combine the teachings of Rackson and Bishop, because these references teach away from the suggested modification. For example, Applicants understand the combination of Rackson and Bishop to change each other’s principles of operation, and to render each others’ teachings unsatisfactory for their intended purposes, as will be described in more detail.

Independent Claim 1 recites,

A method for determining an optimal bid for an item in a market, said method comprising:

- a) selecting characteristics of said market;
- b) selecting a bidding model;
- c) estimating a structure of said market, wherein unobservable variables are expressed in terms of observable bids by inverting said bidding model;
- d) determining a bid function; and
- e) determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function (emphasis added).

Applicants respectfully submit that the cited references, alone or in combination do not teach or suggest, among other things, “wherein unobservable variables are expressed in terms of observable bids by inverting said bidding model...determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function,” as recited by independent Claim 1, for at least the following rationale.

## RACKSON

This section describes Applicants understanding of what Rackson teaches. Rackson teaches a seller embodiment and a buyer embodiment for coordinating bids between multiple remote auction services. For example, referring to Col. 4 lines 22-43 for the seller embodiment, in auctioning an item, it is important that the item not be

“sold” to more than one bidder. If the seller of an item is limited to auctioning their item at one web site, the seller will have to determine which web site would result in the highest bid. Rackson addresses this issue by providing a mechanism coordinating auctioning activities for an item across multiple web sites. For example, referring to the abstract and Col. 5 line 64 to Col. 6 line 23, Rackson teaches detecting a bid at a remote auction service, replicating the bid at a plurality of remote auction services, and coordinating the bidding at the plurality of remote auction services. Referring to the last 3 sentences of the abstract and Col. 20 lines 33-35, the multi-auction service determines which of the detected bids is the optimal bid and then replicates that optimal bid at each of the remote auction services. The detected bid is obviously a bid that has already been placed (referred to herein as a “past bid”).

For the seller embodiment, an “optimal bid” may not be the highest bid. For example, referring to Col. 2 lines 48-52, the bidder that gives the highest bid may have a poor credit rating, in which case, the second highest bid may be the “optimal bid.”

With respect to the buyer’s embodiment, Rackson teaches at Col. 7 lines 18-23 that a bidder is allowed to “...selectively place coordinated bids at one or more remote auction service(s) for a plurality of items where one item is desired” (emphasis added). Referring to Col. 22 line 53, the buyer may input the maximum price that they are willing to pay. Referring to Col. 25 lines 39-41, Rackson teaches determining which of the past bids are the optimal low bids for a bidder. For example, an optimal low bid would be a low bid that has been placed (“a past bid”) in an auction that is about to end rather than a low bid that has been placed (“a past bid”) in an auction that has just started (Col. 25 lines 40-46).

In both Rackson’s seller’s embodiment and Rackson’s buyer’s embodiment, the optimal bids are determined by analyzing past bids and determining which of the past bids is “optimal.”

## THE DIFFERENCE BETWEEN RACKSON AND CLAIM 1

This section describes Applicants' understanding of the difference between Rackson and the embodiment recited by Claim 1. Applicants respectfully agree with the Office Action that Rackson does not teach "...inverting said bidding model..."

Applicants do not understand Rackson to teach "determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function." Instead Applicants understand Rackson to teach that the optimal bids are determined by analyzing past bids and determining which of the past bids is "optimal." Therefore, Applicants do not understand Rackson to teach "determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function" (emphasis added).

#### THE OFFICE ACTION'S ASSERTIONS CONCERNING RACKSON'S TEACHINGS

This section describes Applicants' understanding of the difference between the portions of Rackson cited by the Office Action and the embodiment recited by Claim 1. Applicants do not understand Rackson to teach a bidding model. The Office Action asserted that Rackson teaches "selecting a bidding model," as recited by Claim 1 at Col. 11 lines 2-5, Col. 11 lines 24-26 and Col. 22 lines 26-29. Rackson states at Col. 11 lines 2-5, "If the items were the same, different auction methods could be employed to maximize the final auction price of the item. In one method, one item at a time could be released to remote auction services to be auctioned." In this case, it appears that the Office Action is asserting that releasing one item at a time teaches Claim 1's "bidding model." Col. 11 lines 24-26 state, "Multiple bidders may also be successful in the Dutch auction format where the bids decrease until the final bid price is determined. These bids are replicated in a similar manner." In this case, it appears that the Office Action is asserting that an auction format teaches Claim 1's "bidding model." Col. 22 lines 26-29 state, "The bid replication method can also help Sellers increase the price they receive in auctions in the Virtual Buyers Cooperatives format (e.g. Mercatta, Accompany and

Act Big auction formats. In this case, it appears again that the Office Action is asserting that an auction format or replicating bids teach Claim 1's "bidding model."

To summarize, it appears that the Office Action is asserting that the following teach Claim 1's "bidding model" (this is not an admission on the part of Applicants):

- (1) releasing one item at a time,
- (2) an auction format
- (3) replicating bids

For the sake of argument, Applicants shall assume that (1) releasing one item at a time, (2) an auction format, and (3) replicating bids are examples of a "bidding model." These are not admissions on the part of Applicants. These analogies are merely used for the sake of argument. In this case, Rackson teaches away from "...inverting said bidding model" because it would not make sense to invert "releasing one item at a time," "an auction format," or "replicating bids."

The Office Action asserts that Rackson teaches "determining said optimal bid ... wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function" at Col. 8 lines 49-63 and Col. 25 lines 39-41. Col. 8 lines 49-63 states,

A networked system of the present invention will now be described for implementing a method for coordinating the sale of an item to an optimal bidder across a plurality of remote auction services, where the system comprises a networked multi-auction service 30 (see FIGS. 2 and 10), a plurality of networked remote auction services, and a plurality of bidders. The multi-auction service 30 comprises communications means 34 to transfer selling parameters of the item to be auctioned to the plurality of networked remote auction services 14, processor means 36 comprising means for detecting a plurality of bids from a plurality of remote auction service computers for the item, means for determining which of said plurality of detected bids is the optimal bid, and means for replicating the optimal bid across the plurality of remote auction services (emphasis added).

Since, Col. 8 lines 49-63 teach determining which of the detected bids is the optimal bid and replicating that optimal bid across the remote auction services, Col. 8

lines 49-63 does not teach or suggest “determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function” (emphasis added).

Col. 25 lines 39-50 states,

The multi-auction service then determines which item to bid upon at step 650 and transmits a bid for that item to the remote auction service at step 654. The multi-auction service cannot strictly find the remote auction services with the lowest bid price, since it is likely that the bidding for that item has just begun. It is better to find the optimal low bids where the auction is about to end and to bid at those remote services. The multi-auction service checks the bidding of each item of interest that matches the user defined rules and preferences. If the bids exceed the bidder specified limits stored in a database of rules, that item and site is no longer checked... (emphasis added).

Applicants understand Col. 25 lines 39-50 to teach analyzing or checking past bids to find the lowest bid that has been placed (“a past bid”) in an auction that is preferably about to end. If the past bids exceed a specified limit, then that item and site are no longer checked. Therefore, Col. 25 lines 39-50 does not teach or suggest “determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function” (emphasis added).

## BISHOP

This section describes Applicants’ understanding of what Bishop teaches.

Referring to the last sentence of the abstract, Bishop teaches a way that allows a user to design, implement and solve models without mathematical analysis or computer coding. For example, Bishop states at Col. 1 lines 58-65,

...exact solutions of probabilistic models are generally intractable for all but the simplest examples. Therefore, approximation schemes are used to approximate the posterior distributions. Such approximation schemes generally fall into one of three classes: (1) Laplace’s method and similar semi-analytic approximations; (2) Markov chain Monte Carlo methods, such as Gibbs sampling; and, (3) variational methods....However, for each model that is to be approximated, researchers

must painstakingly work out the mathematics necessary to apply variational inference, and then develop special-purpose computer code to implement the resulting variational algorithm.

According to one embodiment, Bishop allows a model to be specified using a scripting language or by a user drawing a graph of the probability distribution using a graphical user interface (Col. 2 lines 15-18). Bishop states at Col. 2 lines 28-33, “The method determines a distribution for the unobservable variables that approximates the exact posterior distribution, based on the structure for the graph of the model, as well as the functional form for the conditional distributions of the model.”

#### THE DIFFERENCE BETWEEN BISHOP AND CLAIM 1

This section describes Applicants’ understanding of the difference between Bishop and the embodiment recited by Claim 1. Claim 1 recites, “...wherein unobservable variables are expressed in terms of observable bids by inverting said bidding model.” Applicants do not understand Bishop to teach inverting his model let alone to teach expressing his unobservable variables in terms of any of his observable data by inverting his model. Instead, Applicants understand Bishop to teach determining a distribution for unobservable variables based on the structure of a graph of a model or as the functional form for the conditional distributions of the model.

#### THE OFFICE ACTION’S ASSERTIONS CONCERNING BISHOP’S TEACHINGS

This section describes Applicants’ understanding of the difference between the portions of bishop the Office Action cited and the embodiment recited by Claim 1. The Office Action states,

Bishop et al. teach unobservable variables are expressed in terms of observable bids by inverting said bidding model (Bishop et al., column 5, lines 34-60; where observable variables are expressed in terms of unobservable variables in a equation in a form of  $X=KY$ , where X is a observable variable, K is a proportional constant and Y is an unobservable variable so that  $Y=X/K$ , indicating unobservable variable Y is expressed in terms of observable variable X by inverting proportional constant K.

First, inverting the constant K does not teach inverting Bishop's model. Second, Applicants do not understand Col. 5 lines 34-60 to teach modifying an equation in the form of  $X=KY$  into an equation in the form of  $Y=X/K$ .

#### CASTILLO

The Office Action states,

Therefore, it would have been obvious to one of ordinary skill in the art the time the Applicant's invention was made to modify the teachings of Rackson et al. to include the teachings of Bishop et al. The motivation to combine these references is to facilitate representation of unobservable variables in terms of observable variable using model that use external information that contributes to the knowledge about states of unobservable components (Castillo et al., Fig. 1, page 137, column 2, paragraphs 3-5).

The Office Action refers to Castillo but the Office Action does not state what feature in Claim 1 that the Office Action is asserting Castillo teaches or renders obvious.

#### THE COMBINATION OF RACKSON AND BISHOP

This section describes Applicants' understanding of why Rackson and Bishop teach away from each other and therefore cannot be combined. The Office Action asserted that Rackson teaches "selecting a bidding model," as recited by Claim 1 at Col. 11 lines 2-5, Col. 11 lines 24-26 and Col. 22 lines 26-29. Rackson states at Col. 11 lines 2-5, "If the items were the same, different auction methods could be employed to maximize the final auction price of the item. In one method, one item at a time could be released to remote auction services to be auctioned." In this case, it appears that the Office Action is asserting that "releasing one item at a time" teaches Claim 1's "bidding model." Col. 11 lines 24-26 state, "Multiple bidders may also be successful in the Dutch auction format where the bids decrease until the final bid price is determined. These bids are replicated in a similar manner." In this case, it appears that the Office Action is asserting that an auction format or replicating bids teaches Claim 1's "bidding model." Col. 22 lines 26-29 state, "The bid replication method can also help Sellers increase the price they receive in auctions in the Virtual Buyers Cooperatives format (e.g. Mercatta, Accompany and Act Big auction formats. In this case, it appears again that the Office

Action is asserting that an auction format or replicating bids teaches Claim 1's "bidding model."

To summarize, it appears that the Office Action is asserting that the following teach Claim 1's "bidding model" (this is not an admission on the part of Applicants):

- (1) releasing one item at a time,
- (2) an auction format
- (3) replicating bids

For the sake of argument, Applicants shall assume that (1) releasing one item at a time, (2) an auction format, and (3) replicating are examples of a "bidding model." These are not admissions on the part of Applicants. These analogies are merely used for the sake of argument.

Continuing the argument, in this case, Rackson's "mode of operation" for a "bidding model" is "releasing one item at a time," "an auction format," or "replicating bids." In contrast, Bishop's mode of operation enables a user to input a specification for a model using a scripting language or a graph (Col. 2 lines 28-33) where the specification for the model has observable and unobservable variables. The specification includes a functional form for the conditional distributions of the model, and a structure for a graph of the model has nodes for each of the variables (Col. 2 lines 23-27).

Modifying Rackson with Bishop would cause Rackson to specify "releasing one item at a time," "an auction format," or "replicating bids" with a specification of observable and unobservable variables that includes a functional form for a conditional distribution of the "releasing one item at a time," "an auction format," or "replicating bids" and a structure for a graph of the "releasing one item at a time," "an auction format," or "replicating bids" that has nodes for each of the variables. In this case, modifying Rackson with Bishop would change Rackson's mode of operation. Therefore, Bishop

teaches away from Rackson because modifying Rackson with Bishop would change Rackson's mode of operation.

Further, Rackson's intended purpose is to coordinate bids between multiple remote auction sites. Releasing one item at a time and auction formats are embodiments that are used as a part of Rackson achieving Rackson's intended purpose. Modifying Rackson with Bishop would render Rackson inoperable for Rackson's intended purpose of coordinating bids between multiple remote auction services. Therefore, Bishop teaches away from Rackson because modifying Rackson with Bishop would render Rackson inoperable for Rackson's intended purpose.

#### SUMMARY

For at least the reasons that the embodiment recited by Claim 1 is not taught or suggested by Rackson, that Bishop does not remedy the deficiency in Rackson, and that Bishop and Rackson teach away from each other, Applicants respectfully submit that the embodiment recited by Claim 1 should be patentable. Further, independent Claims 8 and 15 should also be patentable for at least the reasons that independent Claims 8 and 15 both recite, "...wherein unobservable variables are expressed in terms of observable bids by inverting said bidding model... determining said optimal bid, which is a prediction of an amount a bidder should bid, wherein said optimal bid is calculated based upon a received evaluation criteria and said bid function."

Claims 2-6 depend on independent Claim 1. Claims 9-13 depend on independent Claim 8. Claims 16-20 depend on independent Claim 15. These dependent claims include all of the features of their respective independent claims. Further, these dependent claims include additional features. Therefore, these dependent claims should be patentable for at least the reasons that their respective independent claims should be patentable.

### CONCLUSION

Based on the arguments presented above, Applicants respectfully assert that Claims 1-6, 8-13 and 15-20 overcome the rejections of record and, therefore, Applicants respectfully solicit allowance of these Claims.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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